Geometry

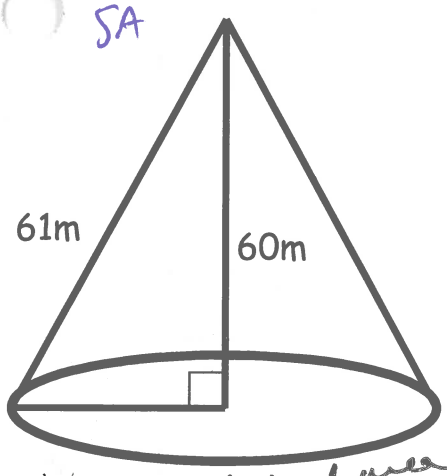
Unit 11 Review Packet

Name: _____

Date: _____

Calculate the volume, lateral and total area of each figure. Be sure to use the correct formulas! Round to 1 decimal place.

SA



base + lateral area = surface area.

$SA = \pi r^2 + \pi rs$

h: 60m

S: 61

r: 11

$60^2 + r^2 = 61^2$

$r = \sqrt{61^2 - 60^2}$

$r = 11$

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER CONE

SPHERE

B: $121\pi = 380.1327$

base area - circle

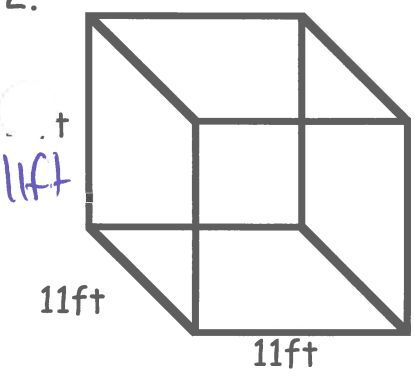
$\pi r^2 = \pi(11)^2 = 121\pi = 380.1327$

Lateral Area: $\pi rs = \pi(11)(61) = 671\pi = 2108.0086$

Surface Area: $121\pi + 671\pi = 792\pi = 2488.1\ m^2$

Volume: $\frac{1}{3}\pi r^2 h = \frac{1}{3}\pi(11^2)(60) = 7602.7\ m^3$

2.



edge 11 ft

B: $side^2 = 11^2 = 121$

h: 11 ft

cube

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER CONE

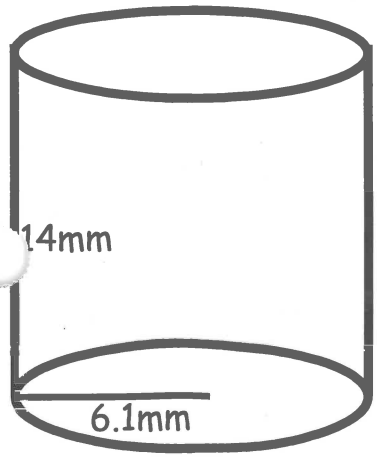
SPHERE

Lateral Area: $4(11^2) = 4(121) = 484\ ft^2$

Surface Area: $6(11^2) = 6(121) = 726\ ft^2$

Volume: base area · height $= (11^2)(11) = 1331\ ft^3$

3. $SA = 2\pi r^2 + 2\pi rh$ (2 circles + lateral area)



h: 14mm

r: 6.1mm

B: $\pi r^2 = \pi(6.1)^2 = 37.21\pi = 116.8986$

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER CONE

SPHERE

Lateral Area: $2\pi rh = 2\pi(6.1)(14) = 536.5840$

Surface Area: $2\pi r^2 + 2\pi rh = 2\pi(6.1)^2 + 2\pi(6.1)(14)$ (base area)(height)

$233.7973 + 536.5840 = 770.4\ mm^2$

Volume: $\pi r^2 h = \pi(6.1)^2(14) = 1636.6\ mm^3$

Geometry

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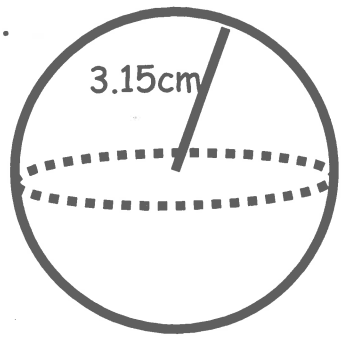
4.



r: 3.15cm

CIRCLE THE SOLID

PRISM PYRAMID

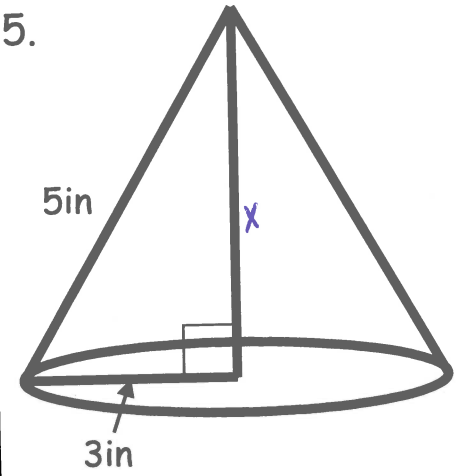
CYLINDER CONE

(SPHERE)

Surface Area: $4\pi r^2 = 4\pi(3.15)^2 = 124.7\ cm^2$

Volume: $\frac{4}{3}\pi r^3 = \frac{4}{3}\pi(3.15)^3 = 130.9\ cm^3$

5.



h: 4in $3^2 + x^2 = 5^2$, $x = \sqrt{5^2 - 3^2}$, $x = 4$ = height

S: 5in

r: 3in

B: $\pi(3)^2 = 9\pi = 28.2743$ (πr^2)

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER (CONE)

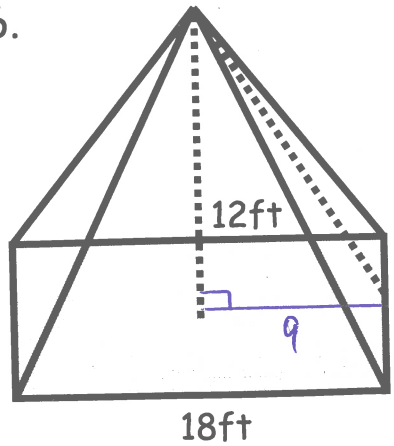
SPHERE

Lateral Area: $\pi rs = \pi(3)(5) = 15\pi = 47.1238$

Surface Area: $\pi r^2 + \pi rs = \pi(3)^2 + \pi(3)(5) = 9\pi + 15\pi = 24\pi$

Volume: $\frac{1}{3}\pi r^2 h = \frac{1}{3}\pi(3^2)(4) = 12\pi = 37.7\ in^3$ $= 75.4\ in^2$

6.



h: 12

S: 15

r: 9 (base of triangle formed with slant height and height)

p: _____ (edge of base)

$9^2 + 12^2 = s^2$, $81 + 144 = s^2$, $\sqrt{225} = \sqrt{s^2}$, $15 = s$

B: $s^2 = 18^2 = 324$

CIRCLE THE SOLID

PRISM (PYRAMID)

CYLINDER CONE

SPHERE

Lateral Area: 4 triangles $4\left(\frac{bh}{2}\right) = 4\left(\frac{18 \cdot 15}{2}\right) = 540\ ft^2$ (slant height)

Surface Area: $\frac{1}{2}s(\text{base perimeter}) + \text{base area}$ $\frac{1}{2}(15)(4 \cdot 18) + 18^2 = 540 + 324 = 864\ ft^2$

$\frac{1}{3}lwh = \frac{1}{3}(18)(18)(12) = 1296\ ft^3$

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... 11 Review Packet

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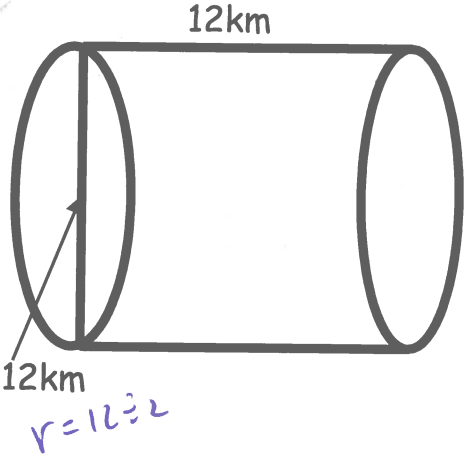


r = 12 ÷ 2

h: 12 km

r: 6m

B: $\pi r^2 = \pi(6)^2 = 36\pi = 113.0973$

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER CONE

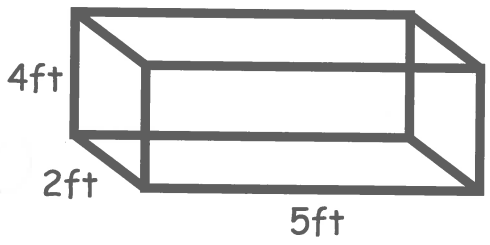
SPHERE

Lateral Area: $2\pi rh = 2\pi(6)(12) = 144\pi = 452.389$

Surface Area: $2\pi r^2 + 2\pi rh$ $2\pi(6)^2 + 2\pi(6)(12) = 72\pi + 144\pi = 216\pi$ $678.6\ km^2$

Volume: $\pi r^2 h = \pi(6)^2(12) = 432\pi = 1357.2\ km^3$

8.



h: 5ft

w: 2ft

B: $L \cdot W = (2)(5) = 10\ ft$

h: 4ft

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER CONE

SPHERE

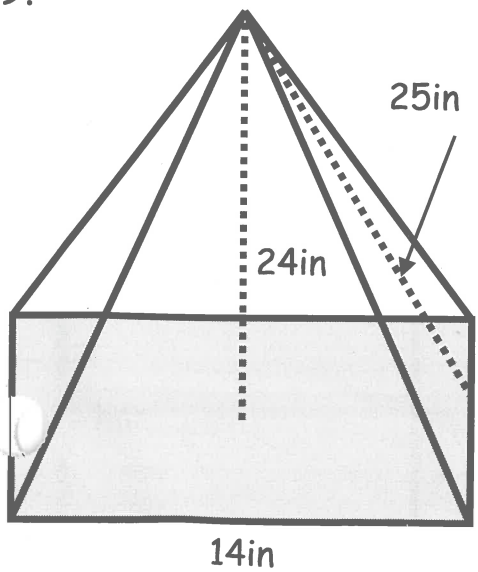
Lateral Area: $2(4 \cdot 2) + 2(5 \cdot 4) = 16 + 40 = 56$

$2(Lw + Wh + Lh)$

Surface Area: $2(2 \cdot 5 + 5 \cdot 4 + 4 \cdot 2) = 2(38) = 76\ ft^2$

Volume: $LWH = (2)(5)(4) = 40\ ft^3$

9.



h: 24in

s: 25in

r: ~~_____~~

edge: 14

B: $14^2 = 196$

CIRCLE THE SOLID

PRISM PYRAMID

CYLINDER CONE

SPHERE

square based regular

Lateral Area: 4 triangles $4\left(\frac{bh}{2}\right) = 4\left(\frac{14 \cdot 25}{2}\right) = 700\ in^2$

$\frac{1}{2}$ s(base perim) + base area

Surface Area: $\frac{1}{2}(25)(4 \cdot 14) + 14^2 = 700 + 196 = 896\ in^2$

Volume: $\frac{1}{3}LWH = \frac{1}{3}(14)(14)(24) = 1568\ in^3$